REMARKS

This paper is being filed in response to the Office Action dated January 5, 2011. Applicant requires a three-month extension the fee for which should be charged to our Deposit Account No. 25-0115. Claims 1 and 17 are amended herewith; claim 5 is canceled. New claims 18-22 are submitted herewith.

New claims 18-22 deal directly with the issue raised by the Examiner with respect to the use of a negative limitation in the claims. Claim 18 presents the reference to the absence of a catalyst in the decomposing zone as a structural limitation and adds limitations with respect to the fact that the flow of air through the chamber is turbulent and not in a straight line as between the two named zones thereof. Moreover, the output of the chamber has been defined in terms of the number of ozone parts per million.

Comparing claims 18-21 to Ikeda et al., the principal reference used by the Examiner in the various rejections, it will be noted that Ikeda et al. specifically teaches the use of a catalyst in the decomposing chamber 28; see for example, Ikeda et al. at col. 10, line 45-52. In addition it will be noted that Ikeda et al. disclosed only straight line rectilinear flow through the entire device in every embodiment. Claims 18-21 distinguish from Ikeda et al. as well as various combinations of Ikeda et al. with other secondary prior art and favorable reconsideration of these new claims is requested.

With respect to new method Claim 22, again the subject matter which the Examiner has viewed as negative limitation is now defined in positive method step terms; i.e., passing the air from the inactivating zone (containing the ozone generator) through a catalyst free decomposing zone both turbulently and non-rectilinearly so as to produce an output with less than about 0.3 ppm ozone. This claim clearly distinguishes from the primary reference in a fundamental and substantive fashion and favorable consideration of Claim 22 is respectfully requested.

With respect to Claims 1-17, they are resubmitted herewith with modest amendment along with the following comments.

In paragraph 2 of the January Office Action, the Examiner has expressed view that the application describes the use of materials that can act to catalyze the decomposition of ozone. Applicant respectfully submits that this is incorrect. The application as filed, page 9, lines 4-24 refers to the titanium dioxide. However, the titanium dioxide is fused into the dielectric to strengthen it. In this form the titanium dioxide cannot act to catalyze the decomposition of ozone. It is therefore submitted that there is no inconsistency between the wording of the claims and the language of the written description.

Claim 1 is amended herewith to state that the upstream stage chamber is "defined by an earthed casing comprising a metal or a plastics material impregnated or coated with a metallic material and"; i.e., it is conductive no matter what the form. Support for this is provided at original page 13 of the specification between lines 21 and 31 where it is explained that the chamber of the apparatus is advantageously comprised of such materials and is "suitably earthed" (grounded).

It is further noted in the application as filed the release of ozone outside of an apparatus containing a corona discharge unit is highly undesirable because of the toxicity of being relatively low levels of ozone; see for example, page 1, line 25 through the end of the page and page 2, lines 1-5 of the application as filed. Prior art devices suggest use of a catalyzed or other means for destroying or trapping ozone before it escapes the apparatus. Alternatively controlling the action of the fan system or adjusting the construction of the ozone generator is suggested.

According to the present invention the low power corona discharge ozone generator in an earthed metal casing produces a significant and unexpected result; i.e., substantial quantities of ozone are produced within the treatment chamber (see tables 1 and 2 of the application as filed, page 21) but very low emissions of ozone occur outside that chamber. This is proven to be the case even where no filter of any kind has been placed on the outlet.

Applicant has had testing carried out by an independent testing facility and submits herewith a copy of the test results by way of technical evidence.

The test results show that operation of low power of corona discharge device produces significant ozone; i.e., 13 ppm ozone was detected in the laboratory immediately when switching on units contained in an open cardboard box. This contrasts with the results shown in the application as filed where the ozone levels outside of the grounded metal casing remain within acceptable safe levels even when operated for 24 hours; see page 21, the final paragraph without being bound by theory it is believed that the earthed casing acts as a Faraday cage which acts to contain the ozone produced by the low power corona discharge device. This is a surprising and advantageous result which renders the claimed invention nonobvious.

Yikai, a secondary reference used in the § 103 rejection of some claims, describes an air cleaner having electric precipitating apparatus that employs corona discharge in an ozone removing apparatus downstream of the precipitating apparatus. The ozone apparatus has a carbon filter and is charged with a low positive voltage to remove ozone generated by the precipitating apparatus by chemical conversion to oxygen and carbon dioxide. There is, however, no disclosure of a low powered corona discharge ozone generated mounted inside of a chamber defined by an earthed (grounded) casing comprising metal or plastic material impregnated or coated with a metallic material as set forth in vlaim 1 as amended. Claim 1 distinguishes from the teachings of both Ikeda et al. and Yikai.

Ikeda et al. describes a method and apparatus for generating air ions to sufficiently prevent propagation of microbes adhering to an object by using the air ion without secondary pollution. There is, however, no disclosure of a low powered corona ozone generator mounted inside a chamber wherein the chamber is defined by a grounded casing as set forth in claim 1; note also the reference to the non-rectilinear flow path. Claim 1 distinguished from both Ikeda et al. and Yikai.

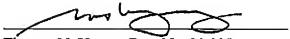
The apparatus claimed herewith provides significant technical advantages over prior art devices especially with regard to containing the ozone produced when purifying air. The apparatus of the present invention as set forth in claim 1 can be safely used even with no filtration of the expelled air. Thus, the invention of claim 1 is an effective straightforward and

significant advantage providing a means for controlling ozone escape in a way that is not taught or suggested by the prior art.

Favorable reconsideration of claims 1-17 and favorable consideration of new claims 18-22 is respectfully requested.

Respectfully submitted,

YOUNG BASILE



Thomas N. Young, Reg. No. 20,985
248-649-3333

3001 W. Big Beaver Road, Suite 624
Troy, Michigan 48084-3107

Dated: June 29, 2011

MICROBIAL INNOVATIONS LIMITED

89 Market Place, Codnor, Ripley, Derbyshire DE5 9QA, U.K.
Tel: 01773 749170 Mobile: 07974 722413
E-mail: WaterDocWebber@btconnect.com

DETERMINATION OF OZONE PRODUCTION FROM NON-EARTHED (CCFT) CORONA SYSTEMS.

05/12/07.

Procedure.

A non-earthed twin corona system was operated (240 v. 88 ma) in a sealed cardboard enclosure (dimensions: length 57cm x height 25 cm x width 18 cm) for a period of 35 minutes.

Ozone levels in the enclosure were monitored using an *Aeroqual Series 200 Handheld Monitor* [Reading functions: minimum/maximum/average/STEL]. Range: 0 – 500 ppm. A range of calibrated heads is available for measuring specific concentrations with greater accuracy. Calibrated head used: 0 – 0.150 ppm.

Results.

Background levels of 0 ppm ozone were determined in the laboratory and the enclosure before the operation of the corona systems. High levels of ozone were discernable by the operator once the corona systems were switched on (prior to sealing in the enclosure) and the monitor recorded a reading of 13 ppm ozone.

Operation of the corona systems in a sealed (non-EMF shielded) enclosure produced levels of ozone which exceeded the capacity of the calibrated head i.e > 0.150 ppm.

Conclusions.

Previous experimental observations and operation procedures have demonstrated that normal operation of the CCFT corona system generates high levels of ozone within the Airmanager units, and that the ozone disassociates as soon as it leaves the plasma field (which is contained within a Faraday cage formed by the unit).

Operating the corona systems with no enclosing Faraday cage produced unacceptably high levels of ozone.

Dr. D.L. Webber.
Technical Director.

Date of Report: 11th December 2007.